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Fish prey of the Great-billed Heron *Ardea sumatrana* in Mu Ko Surin National Park, Thailand

Philip D. Round[1*] and Jes Kettratad[2]

The Great-billed Heron *Ardea sumatrana* is distributed along sea-coasts in mainland Southeast Asia from Arakan, Myanmar (Smythies, 1986), south and east to southern Vietnam and the Philippines, and through the islands of Indonesia to Australasia (Martinez-Vilata *et al.*, 2020). It is scarce and little known in Thailand, where historically recorded from both peninsular coasts, including from Ko Tarutao, Satun Province (Robinson & Kloss, 1911) and Trang Province (Riley, 1938) on the west coast, and Ko Phangan, Surat Thani Province on the east (Robinson, 1915a). One specimen was also collected on an island off Trat Province, South-east Thailand, close to the border with Cambodia (Robinson, 1915b). In Thailand and the Thai-Malay Peninsula the Great-billed Heron is almost exclusively coastal, favoring secluded islands and areas of mangroves in association with mud- and sand-flats (Lekagul & Round, 1991; Wells, 1999).

The only confirmed records of the Great-billed Heron from Thailand within the past c. 80 years are from Mu Ko Surin National Park, Phang-nga Province, where it is presumed resident, having been intermittently observed since 2002 (Wells, 2007; https://ebird.org/home). While its world population is thought to be declining, its conservation status is given as Least Concern globally (BirdLife International, 2023). Its extreme scarcity in Thailand, however, is such that it is considered Critically Endangered at the national level (BCST, 2022; ONEP, 2017). Although because of the remoteness of its (mainly island) habitat, a few Great-billed Herons are almost certainly still present at unknown sites, the level of direct disturbance over decades by fishermen and by the tourism industry is thought to have reduced its population to perilously low levels.

In spite of its wide range, the ecology of the species is not well-studied. There is very little detailed information on its diet. Although it is known to take predominantly fish (Marchant & Higgins, 1990; Wells 1999; Martinez-Vilata *et al.*, 2020), mudskippers *Periophthalmus* spp. (Family Oxudercidae) were the only specified prey items during observations of a feeding Great-billed Heron in Borneo (Croxall, 1969).

During a visit to Mu Ko Surin National Park, Phang-nga Province, one of us (PDR) was able to make observations from a boat, moored c. 30 m offshore, of Great-billed Herons on a sandy beach of a small, forested and uninhabited rocky islet, over three late afternoons. Up to three different individuals were seen, two different adults and one full-grown juvenile. For most of the period only a single adult, or a single adult and a full-grown juvenile, were in view. Observations were made for 2 h 35 min on 4 February 2023, 2 h 40 min on 5 February 2023 and 1 h 32 min on 6 February 2023. All observations were made at low or falling tide.

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[1] Department of Biology, Faculty of Science, Mahidol University, Rama 6 Road, Bangkok 10400, Thailand.
[2] Department of Marine Science, Faculty of Science, Chulalongkorn University, Bangkok 10330, Thailand. E-mail: jes.kettratad@gmail.com
* Corresponding author. E-mail: philip.rou@mahidol.ac.th
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For much of the time, the adult ranged along the beach, usually in shallow water, estimated depth ca. 20–30 cm. Over approximately 3h 20 min of detailed observation, during two successive late afternoons, the adult took only two visible prey items, both on 5 February, in relatively rapid succession. The time of capture of each was 1724 h and 1749 h. The two prey items were both identified from photographs by JK as rabbitfishes, *Siganus* spp. (Family Siganidae). *Siganus* spp. are characterized by the presence of dorsal, pelvic and anal spines associated with venom glands which can administer a painful sting. The genus is widespread in shallow coastal waters from the Red Sea across the Indian Ocean to the western Pacific (WOODLAND, 2001; KIMURA & MATSUURA, 2009). Both fishes were sizeable, approaching in length that of the bill of the Great-billed Heron (listed, for two adult Australian specimens as 169.8 mm and 183.3 mm; MARCHANT & HIGGINS, 1990). Neither was precisely identified to species from the photographs obtained. Nor could it be reliably determined whether the two prey items constituted one or two species.

The heron spent 15 min subduing and manipulating each of the two fishes before swallowing them whole, head-first. After swallowing the first fish at 1739 h, at 1743 h the adult heron resumed fishing and caught the second fish after only another six minutes. After swallowing the second fish at 1804 h, the adult bird ceased foraging and at 1818 h walked on boulders on the beach to the forest edge where it still remained at the time of our departure, 1827 h, and where it was presumed to be intending to roost.

It is of particular note that Great-billed Heron should catch, subdue and eat two such relatively large and, moreover, venomous fishes in such a short time period. However, predation by birds on *Siganus* spp. is already known. A Black-crowned Night Heron *Nycticorax nycticorax* was recorded killing and swallowing a fish identified as *S. guttatus* in Singapore (LEONG, 2012). Additionally, a single *Siganus* sp. featured among 2,072 prey items identified from food-pellets regurgitated in a breeding colony of Little Egrets *Egretta garzetta* in Pattani, Thailand (BUATIP *ET AL.*, 2014).

The Great-billed Heron should be a priority species for future monitoring in view of its nationally threatened status, extreme scarcity, and potential vulnerability to human disturbance. The absence of recent records from southeastern Thailand may suggest its regional extirpation from there. While the species is known from adjacent Cambodia, the only two specimens date from as long ago as 1876. There are only two subsequent, unconfirmed, post-1995 sight-records, likewise suggesting its extreme scarcity in that country (GOES, 2013). Much wider surveys of (particularly) the Andaman peninsular seacoast of Thailand would likely reveal a few individuals at other relatively remote island sites. Happily, national park staff at Mu Ko Surin are aware of the need to minimize disturbance to the species within their area of responsibility. Although the particular islet where these observations were made is frequently visited by boat tours offering snorkeling over surrounding corals, landing on the islet is forbidden, so that disturbance of the herons from this activity is thought to be minimal.

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Figure 1. Adult Great-billed Heron *Ardea sumatrana* manipulating a newly caught *Siganus* sp., 1724 h, 5 February 2023, Mu Ko Surin National Park. Photograph by Philip Round.

Figure 2. The same adult Great-billed Heron with its second newly caught *Siganus* sp., 1749 h, 5 February 2023, Mu Ko Surin National Park. Photograph by Philip Round.

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